

1 Patent claims

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3 1. An optical module including  
4     - a circuit carrier (10),  
5     - a housed semiconductor element (12) which is  
6         arranged on the circuit carrier (10), and  
7     - a lens unit (14, 16, 18, 20, 21) for projecting  
8         electromagnetic radiation onto the semiconductor  
9         element (12),  
10    - wherein the housed semiconductor element (12) and  
11         the lens unit (14, 16, 18, 20, 21) are formed in  
12         two parts,

13 characterized in that

14     - a support (13a) is formed, at least in sections,  
15         on the housing (13) of the semiconductor element  
16         (12), upon which support (13a) the lens unit (14,  
17         16, 18, 20, 21) is arranged and supported.

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19 2. The optical module as claimed in claim 1,  
20 characterized in that  
21 the support (13a) is formed such that it is partially  
22 tilt-free, in particular in the shape of a ring collar.

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24 3. The optical module as claimed in claim 1 or 2,  
25 characterized in that  
26 the lens unit (14, 16, 18, 20, 21) includes a base lens  
27 (16), wherein the support of the lens unit (14, 16, 18,  
28 20, 21) takes place via the base lens (16).

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30 4. The optical module as claimed in claim 1 or 2,  
31 characterized in that  
32 the lens unit (14, 16, 18, 20, 21) includes a lens  
33 holder (14), wherein the support of the lens unit (14,

1 16, 18, 20, 21) takes place via the lens holder (14).

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3 5. The optical module as claimed in claim 3 or 4,  
4 characterized in that  
5 the base lens (16) or the lens holder (14) includes a  
6 surface section (16a) which is formed so as to  
7 correspond to the support (13a), at least in sections,  
8 said surface section (16a) being positioned on the  
9 support (13a) which is formed on the housing (13) of  
10 the semiconductor element (12).

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12 6. The optical module as claimed in claim 3 to 5,  
13 characterized in that  
14 the base lens (16) or the lens holder (14) has a collar  
15 (16b), at least in sections, which is formed so as to  
16 correspond essentially to a locating face (13b) that is  
17 formed on the support (13a).

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19 7. The optical module as claimed in one of the preceding  
20 claims,  
21 characterized in that  
22 a locating face (13b) is formed on the support (13a),  
23 at least in sections.

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25 8. The optical module as claimed in claim 7,  
26 characterized in that  
27 the locating face (13b) of the support (13a) is formed  
28 in a manner which is tapered, in particular conical,  
29 from the semiconductor element (12) in the direction of  
30 the optical axis (33) of the module.

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32 9. An optical system including an optical module as  
33 claimed in one of the preceding claims.